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The Mineral Industry of Malaysia

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The Mineral Industry of Malaysia

By John C. Wu[1]

Despite improvement in world prices of crude petroleum, tin, and other mineral commodities, total output of the mining industry remained essentially at the 1986 level, owing mainly to a production cutback in crude petroleum by the oil and gas industry. The cutback enabled Malaysia to support the Organization of Petroleum Exporting Countries (OPEC) plan to stabilize world oil prices. Mine output of the tin industry increased only slightly, resulting from reopening of some previously idled gravel-pumping tin mines. However, mine output of gold reached a record-high level, owing to the increased market price of gold in 1987.

The mineral industry, dominated by oil and gas production, remained an important sector of the Malaysian economy. Its output continued to contribute about 11% to Malaysia's gross domestic product (GDP) in 1987. Its export earnings, principally from exports of copper concentrate, crude petroleum, liquefied natural gas (LNG), tin, and other mineral commodities, such as bauxite and ilmenite concentrate, valued at $3.8 billion,[2] accounted for about one-quarter of Malaysia's total export earnings in 1987. Malaysia remained the world's largest tin producer and an important producer of bauxite, cement, copper, crude petroleum, ilmenite, natural gas, and rare-earth minerals in the Far East.

The oil and gas industry continued to progress with more oil and gas production capacity being added by Esso Production Malaysia Inc. (EPMI) at the Seligi Oilfield offshore of Terengganu. Also there was the launching of the second phase of the gas-utilization project by the state-owned Petroliam Nasional Bhd. (Petronas) to bring offshore natural gas to the industrial and population centers along the west coast of peninsular Malaysia. Following a downward trend in oil and gas exploration during 1982-87, exploration activity was expected to increase in 1988, owing to stabilized world oil prices and better terms in the new production-sharing contracts offered by the Malaysian Government to foreign oil companies in 1986. The Government, through Petronas, signed five new production-sharing contracts and five letters of intent with oil companies from Japan, the Republic of Korea, Taiwan, and the United States for exploration of oil and gas offshore of Sabah, Sarawak, and Terengganu.

The tin industry, still in the process of recovery, reactivated about 30 tin mines, mainly from the gravel-pumping sector, because of a slight improvement in the market price of tin. About 1,000 tin miners rejoined the industry's employment. In early 1987, seven members (including Malaysia) of the Association of Tin Producing Countries (ATPC) agreed to control their tin exports, using a quota system, starting in March and extending for 12 months. In September, the ATPC's tin-export-control agreement was extended beyond 1988 to reduce further the surplus tin stocks. The management of copper mining operations at the Mamut Mine in Sabah was taken over by the Mamut Copper Mining Sdn. Bhd., a new majority-Malaysian-controlled company, from the Overseas Mineral Resources Development Sabah Bhd. (OMRDS) in April. As a result of higher gold prices in 1987, gold output from small-scale mines in the States of Pahang and Sarawak and gold recovered as a byproduct of tin dredging and gravel pumping in the States of Perak and Selangor increased substantially.

In the mineral processing sector, the 3-year-old direct-reduced-iron (DRI) plant, owned and operated by Perwaja Terengganu Sdn. Bhd. (PTSB) at Telok Kalong, near Kemaman in Terengganu, was shut indefinitely in February. The closure resulted from inefficient plant operations and reduced domestic demand for DRI. Nippon Steel Corp., the designer and builder of the DRI plant, paid about $194 million to compensate PTSB for not meeting certain quality specifications of DRI produced by the plant. Production of direct-reduced, hot-briquetted iron (HBI) by Sabah Gas Industries Malaysia Sdn. Bhd. (SGIM), on Labuan Island off Sabah, for export markets was at full capacity.To meet the growing demand for its HBI, SGIM planned to expand its capacity to 870,000 tons per year. Malaysia brought on-stream a new 1.2-million-ton-per-year cement plant at Pedang Rengas in Perak in early 1987. The cement industry, having an installed capacity of 7.2 million tons per year, was operating at less than 50% capacity in 1987 because of a continuing recession in the construction industry. Production of LNG in Bintulu, Sarawak, for export to Japan was at full capacity of 317 billion cubic feet.

According to Malaysia's Ministry of Finance, the output of the mining industry increased only 0.1%, compared with an increase of 7.5% (revised) in 1986. However, the mining industry continued to contribute about 11% to Malaysia's GDP, which was estimated at $27.7 billion ($21.7 billion in 1978 constant dollars). The Malaysian economy was estimated to have grown 1.7%, compared with 2.1% (revised) in 1986. Economic growth in 1987 was sustained principally by a 7.5% increase in the output of the manufacturing sector which contributed 22.2% to Malaysia's GDP in 1987. Malaysia's export earnings were estimated at $16.1 billion and imports at $13.7 billion. The merchandise trade surplus was about $4.7 billion, compared with $3.4 billion in 1986. The inflation rate, as measured by changes in the Consumer Price Index, rose to 1.5% from 0.7% in 1986. The country's labor force increased to 6.3 million, with about 570,000 unemployed in 1987.[3]

A national mining policy was being drafted by the Geological Survey of Malaysia (GSM) and the Department of Mines to ensure that the country's mineral resources are exploited in an orderly and efficient manner to meet the overall objective of developing the nation. According to the Ministry of Primary Industry, the new policy would provide not only the guidelines but also the incentives to attract investment for mineral exploration and development. High priority was given to exploration and development of gold and associated minerals.[4] In an effort to increase State revenues, Perak reportedly would give priority to small-scale mining of gold in Bidor, iron ore in Hulu Perak, and manganese oxide in Sungai Siput.

PRODUCTION

The overall output of the mining industry remained at about the 1986 level. Crude petroleum production dropped to an average of 498,000 barrels per day (bbl/d) from 503,000 bbl/d in 1986, while output of natural gas rose to 1.6 billion cubic feet per day from 1.5 billion (revised) cubic feet per day in 1986. Production of ilmenite and tin, stimulated by improvement in market prices, increased moderately. Mine production of bauxite and iron ore decreased because of reduced demand from foreign markets. Mine production of copper and gold increased as market prices of copper and gold moved upward in the spring of 1987.

Despite the recent downturn in the tin-mining industry, Malaysia remained the world's largest producer. Output of tin reached its lowest level in June 1986, when the market price dropped to $5.62 per kilogram. But the price rose to $6.75 per kilogram in early 1987 and stabilized between $6.50 and $6.70 per kilogram in the second half of 1987. During 1987, about 30 inactive tin mines resumed operations; 23 were from the gravel-pumping sector and 7 were from the open pit mining sector. Extraction of rare-earth minerals, such as monazite and xenotime, columbite, struverite, and zircon from tin tailings increased during 1984-87, owing to increased exports to Japan and Western European countries. Malaysian processing plants for tin tailings reportedly imported considerable amounts of raw materials from Australia and Thailand.

Production of cement dropped to less than 3 million tons because of a further slowdown in the country's construction industry and reduced exports. Production of DRI for domestic consumption by PTSB in Terengganu was stopped in February, while production of DRI for export by SGIM on Labuan Island was at full capacity. Production of crude steel remained stagnant, owing to a weak domestic demand for steel products such as steel wire and bar by the construction industry.

Table 1.—Malaysia: Production of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity[2]	1983	1984	1985	1986	1987[p]
METALS					
Aluminum: Bauxite, gross weight thousand tons	562	680	492	559	482
Antimony, mine output, Sb content (Sarawak)	136	17	12	--	129
Columbium and tantalum concentrate, gross weight	67	45	80	215	228
Cb content of columbium[e]	10	7	12	r32	34
Ta content of tantalum[e]	7	3	6	r15	16
Copper, mine output, Cu content (Sabah)	29,048	28,852	30,507	23,301	29,861
Gold, mine output, Au content:					
Malaya troy ounces	5,792	7,041	7,115	8,839	14,532
Sabah do.	78,543	82,012	78,818	71,396	87,321
Sarawak do.	162	474	4,371	6,791	11,156
Total do.	84,497	89,527	90,304	87,026	113,009
Iron and steel:					
Iron ore and concentrate thousand tons	114	194	182	208	161
Steel, crude do.	350	350	550	750	e800
Rare-earth metals: Monazite gross weight	1,051	4,980	5,808	5,959	2,908
Silver, mine output, Ag content					
Sabah thousand troy ounces	485	470	522	452	497
Sarawak[3] do.	--	--	--	--	10
Tin:					
Mine output, Sn content	41,367	41,307	36,884	29,135	30,388
Metal, smelter	53,338	46,911	45,500	43,788	44,363
Titanium: Ilmenite concentrate, gross weight	r222,712	r268,490	r314,736	414,941	509,202
Tungsten, mine output, W content	31	25	20	e25	e25
Zirconium: Zircon concentrate, gross weight	2,548	r7,933	11,652	12,633	17,828
INDUSTRIAL MINERALS					
Barite	21,434	23,421	23,394	22,506	38,935
Cement, hydraulic thousand tons	3,231	3,469	3,128	3,176	2,922
Clays: Kaolin	57,472	72,472	82,576	85,052	92,882
Nitrogen: N content of ammonia	28,800	38,900	53,400	r e300,000	321,300
MINERAL FUELS AND RELATED MATERIALS					
Gas, natural (Sarawak): Gross million cubic feet	150,161	398,700	483,224	525,965	e584,000
Petroleum:[4]					
Crude thousand 42-gallon barrels	139,800	163,082	156,950	183,814	181,724
Refinery products:					
Gasoline do.	7,608	8,288	8,745	8,868	e9,400
Jet fuel do.	2,618	2,642	e2,650	e2,700	e2,900
Kerosene do.	4,079	4,623	3,461	3,876	e3,900
Distillate fuel oil do.	14,062	14,351	11,719	10,293	e10,500
Residual fuel oil do.	11,254	11,585	7,543	8,298	e8,100
Other[5] do.	3,593	3,929	r e11,492	r e11,500	e12,000
Total do.	43,214	45,418	e45,610	r e45,475	e46,800

eEstimated. pPreliminary. rRevised.

[1]All production is from Peninsular Malaysia (Malaya) unless otherwise specified. Table includes data available through June 14, 1988.

[2]In addition to the commodities listed, a variety of crude construction materials (clays, sand and gravel, and stone), fertilizers, and salt are produced, but output is not reported, and available information is inadequate to make reliable estimates of output levels.

[3]Byproduct from gold mines in Sarawak.

[4]Includes production from Malaya, Sabah, and Sarawak.

[5]Includes liquefied petroleum gas, lubricants, and naphtha.

TRADE

According to Malaysia's Ministry of Finance, the country's merchandise exports rose to $16.1 billion from $13.7 billion (revised) in 1986, while imports increased to $11.4 billion from $10.3 billion (revised) in 1986. As a result, Malaysia's trade surplus improved to $4.7 billion from $3.4 billion in 1986. The higher export earnings resulted from higher prices for major export commodities such as crude petroleum, forestry products, nonfuel minerals, and rubber.

Export earnings from crude petroleum rose to $2.6 billion from $2.1 billion in 1986, while export earnings from LNG dropped to $681 million from $734 million in 1986. Exports of bauxite, copper concentrate, other nonfuel minerals, and tin were estimated at $460 million. Malaysia exported most of

its crude petroleum to Japan and Singapore. All exports of copper concentrate went to Japan. Tin was exported to Japan, Western Europe and the United States; bauxite and other byproducts of tin, such as ilmenite concentrate and rare-earth minerals, were exported mostly to Japan.

In 1987, Malaysia's merchandise exports to the United States were valued at $3.1 billion, while Malaysia's imports from the United States were valued at $1.8 billion. The U.S. share in Malaysia's total value of two-way merchandise trade rose slightly to 17.8% from 17.6% in 1986. Japan, Singapore, and European Economic Community countries remained important trading partners of Malaysia.

COMMODITY REVIEW

METALS

Copper.—Because of a large accumulated loss from the Mamut copper operations in Sabah resulting from prolonged low prices, increased interest charges on outstanding loans, and a 7% State tax on mine output, the seven Japanese copper smelters participating in the joint-venture project through OMRDS of Japan, officially withdrew from active involvement in management of the mining operations at the end of March 1987. To prevent the mine from closing and to continue receiving copper concentrate from the mine, the seven Japanese smelters (led by Mitsubishi Metal Corp.) agreed to restructure the project's $80 million debt by disclaiming a $47 million debt repayment.

In April, a new majority-Malaysian-controlled company, the Mamut Copper Mining Sdn. Bhd., was established to take over management of the mine. Mitsubishi Metal, Nippon Mining Co. Ltd., and a few other Japanese copper smelters reportedly were still holding a minority interest in the project. In 1987, Japan continued to import about 135,000 tons of copper concentrate, containing 32,000 tons of copper, from the Mamut Mine.

Gold.—Gold production from several small-scale gold mines in the Raub area of Pahang and the Bau area of western Sarawak and as a byproduct of tin dredging and open pit operations in the States of Perak and Selangor reached another record high owing to higher gold prices in 1987. Gold recovered as a byproduct from the Mamut copper mine also increased because of increased copper production.

In September, Dome Resources NL of Australia signed a joint-venture agreement with the State of Kelantan to explore for gold in a 1,500-square-kilometer area identified earlier by the GSM as offering the best prospects of finding viable primary and placer gold deposits. The areas identified by GSM in 1980 included Gua Musang, Manik Urai, Sokor and Dabong, Sungei Pergau, Sungei Kelantan, and Sungei Galas. Dome Resources was also granted three prospecting licenses by the State of Sabah to explore for gold, platinum, and silver in the areas of Umas-Umas, Balambangan Island, and Taritipan.[8]

Iron and Steel.—Direct-reduced HBI produced entirely for export by SGIM on Labuan Island off Sabah was at full capacity. According to a company official, SGIM planned to increase its direct-reduced HBI production capacity by 150,000 to 870,000 tons per year by installing a fourth hot-briquetting machine. SGIM was expected to make a decision on the expansion in 1988. According to the company's earlier marketing efforts, foreign demand for SGIM's direct-reduced HBI reportedly exceeded its 720,000-ton-per-year capacity. The price of direct-reduced HBI remained competitive with that of high-grade steel scrap in 1987.

Production of DRI for the domestic market by PTSB at the Telok Kalong industrial estate in Kemaman, Terengganu, ceased in February. The main reasons for the closure were technical problems related to quality specifications of the briquetted iron produced by the plant; reduced consumption of DRI by domestic steelmakers, resulting from lower prices of steel scrap; and reduced domestic demand for steel. According to PTSB, the DRI-to-scrap ratio of its steel billet plant never exceeded 60:40 compared with the originally planned 80:20 ratio. Some DRI produced earlier reportedly was exported to Nippon Steel of Japan. According to industry sources, inconsistent quality of the natural gas (which sometimes had a high content of unwanted carbon) and prob-

lems related to the quality of ore were partially attributable to inefficient operation of the DRI plant.[6]

In April, Nippon Steel, the DRI plant designer and builder, reportedly paid $194 million to compensate PTSB for failure to resolve the technical problems of meeting the original contract specifications. However, because of higher interest charges on the project's Japanese loans, inefficient operation of the DRI plant, and weak domestic demand for steel products by the construction industry, PTSB suffered a loss of $42 million for fiscal year 1986 (ended in March). To reduce the high-interest costs on a $503 million loan from the Export-Import Bank of Japan, PTSB reportedly obtained a new loan from a consortium of Japanese banks (led by Dai-Ichi Kangyo Bank) to refinance the loan. As a result of the rapid appreciation of the Japanese yen, the effective interest rate on the original loan ballooned to 18.03% from 7.75% in 1987.

Tin.—Production increased moderately as more idled mines were reactivated mainly in the gravel-pumping sector in the States of Perak and Selangor following improvement in the price of tin. The average monthly price of tin on the Kuala Lumpur Tin Market (KLTM) recovered to $6.61 per kilogram in June from $5.81 per kilogram in June 1986. According to Malaysia's Department of Mines, the number of operating mines increased to 225 in September from 195 in September 1986. For the first 9 months, tin mine production rose 5.7% to 23,045 tons from 21,805 tons for the same period in 1986. Of the tin produced in the first 9 months, 41% was by dredging, 39% by gravel pumping, 9% by open pits, and 11% by other methods.

Despite a slight improvement in tin production, the industry was still far from full recovery. It is unlikely to regain its former role in the Malaysian economy in the near future because of continuing depressed tin prices, the decreasing world demand for tin, and increasing tin supplies from low-cost producers, especially Brazil. Export earnings from tin, once contributing $1 billion and accounting for 8% of Malaysia's export earnings in the early 1980's, have dropped to $258 million and contributed only 1.9% to Malaysia's export earnings in 1986. Employment in the tin industry has declined to 12,000 from 39,000 in the early 1980's, while the number of operating mines decreased to about 230 from 850.

Following the October 1985 tin crisis, Malaysia Mining Corp. (MMC), the world's largest tin-mining company, began a major restructuring program. MMC first underwent massive cost-cutting and reorganization by closing high-cost tin mines and laying off workers in 1986. Secondly, it further consolidated and diversified by divesting itself from six satellite tin-mining companies and associates in 1987. According to Malaysian press reports, this divestment was to reduce MMC's debts, to fund various MMC diversification programs in diamonds and precious metals, and to restore company profitability. The six disposed companies and MMC's previous stakes in the companies, respectively, were Aokam Tin Dredging, 42.9%; Ayer Hitaman Tin Dredging, 13.9%; Kampong Lanjut Tin Dredging, 30.0%; Kamunting Tin Dredging, 23.8%; Tongkah Harbor Tin Dredging, 42.0%; and Tronoh Mines Malaysia, 17.5%. These companies reportedly were either inactive or had low tin reserves.

The Sungei Lembing Mine, the largest and deepest underground tin mine in Malaysia (owned and operated by Pahang Investments Public Ltd. Co. (PIPLC)) was to be taken over by MMC for M$1.00 (US$0.40) free of all liabilities in May. However, according to Malaysian press reports, a shareholder of PIPLC filed a winding-up petition against PIPLC in the Kuala Lumpur High Court in March, claiming that several former and current directors of the board were acting in their own interest and that the transaction was fraudulent, oppressive, unfair, and unjust to a majority of the shareholders. As a result, the takeover of the mine by MMC reportedly was postponed while the Government worked on a new formula for MMC to take over the mine and prevent closure. The mine produced 1,000 tons of tin before the October 1985 tin crisis and produced about 450 tons of tin before the mine ran out of money in 1986. To prevent the mine from flooding, 175 maintenance workers had been working without pay since September 1986. According to industry sources, the break-even rate of tin production was estimated at 100 tons per month with a market price of about $6.60 per kilogram.[7] In September, the Government reportedly was also looking for a private company to take over the Sungei Lembing Mine.

The Government's $27 million soft loan program to assist the financially troubled tin miners received a poor response and was available only to small-scale miners begin-

ning in the second half of 1987. Tin miners with production of more than 300,000 cubic meters and capital investment of more than $4 million were disqualified. According to a Government official, since July 1986, 152 miners applied for loans, 64 applications were approved, and 8 applications were withdrawn later. A year after the program was implemented, only $1.1 million was disbursed to seven mining companies.

According to an agreement reached by the seven members of ATPC in January, the members' annual tin exports would be limited to 96,000 tons over a 12-month period (beginning in March 1986) to reduce the 75,000-ton surplus. Thus, Malaysia's export quota was limited to 28,526 tons in 1987. Following the second meeting of ATPC in Kuala Lumpur in September, the seven members agreed to extend export controls beyond February 1988. According to an industry source, by July the tin surplus declined to 59,000 tons and was expected to be reduced to 45,000 tons by yearend.[e]

In May, KLTM opened its trading to Indonesian and Thai tin, but no tin was offered for trading by either country. However, Trans-World Metals Ltd. of the United Kingdom and Thailand Smelting and Refining Co. Ltd. (Thaisarco) of Thailand became members of KLTM in September. On October 27, the Kuala Lumpur Commodity Exchange (KLCE) started the world's only tin futures trading. Trading on the London Metal Exchange was suspended in October 1985. Initially, the tin futures contracts were limited to 300 tons per day for Malaysian tin, and prices were quoted in U.S. dollars. Malaysian Futures Clearing Corp. Sdn. Bhd. guaranteed the financial performance of the tin futures contract traded on KLCE.

Yttrium.—Yttrium was produced by two Malaysian-Japanese joint-venture firms, Malaysian Rare Earth Corp. and Asian Rare Earth (ARE), near Ipoh in Perak, 220 kilometers north of Kuala Lumpur. The two companies used domestic and imported monazite (from Australia and Thailand) to extract yttrium. In the chemical process, a radioactive byproduct, thorium hydroxide, was also produced. Most yttrium produced in Malaysia was exported to Japan for consumption mainly by the television manufacturing industry. The ARE plant was closed in October 1985, because of an order issued by the Ipoh High Court. The closure resulted from a suit filed in March 1985 by residents living near the plant for improper safety measures. The ARE reopened its 4,000-ton-per-year plant in February after receiving a 1-year temporary license from Malaysia's Atomic Energy Licensing Board. The ARE is 35% owned by Mitsubishi Chemical Industries Ltd. of Japan, with capital investments of $ 12 million, 40% by Beh Minerals Sdn. Bhd., 20% by Pilgrim Management Fund Board of Malaysia, and 5% by local individuals. The ARE plant was managed by Mitsubishi Chemical. Because of problems associated with storing radioactive materials and the production suspension, ARE reportedly lost $2.8 million during the 2-year period.[e]

INDUSTRIAL MINERALS

Despite expansion of the industry's production capacity to more than 7 million tons per year, Malaysia's cement production dropped to less than 3 million tons in 1987 because of reduced domestic demand. Domestic cement consumption reached 4.7 million tons in 1984 and declined to 3 million tons in 1986 and 1987, because of a recession in the construction industry. To cope with the problems of excess capacity, the cement industry reportedly was investigating a proposal to reallocate the regional quota among cement plants established to save the costs of handling and transportation. The industry was also considering forming one cement marketing company for better control of cement distribution and cooperating to share costs among cement producers for exporting cement to overseas markets.

Perak Hanjoong Simen Sdn. Bhd. brought on-stream its 1.2-million-ton-per-year cement plant at Pedang Rengas in Perak in early 1987. Table 2 shows the location and capacity of Malaysia's cement producers.

Table 2.—Malaysia: Cement production capacity, 1987

(Thousand metric tons)

Company and location	Annual capacity
Associated Pan Malaysia Cement Sdn. Bhd.:	
Kanthan, Perak	1,000
Rawan, Selangor	1,500
Cement Industries Malaysia Sdn. Bhd.: Kangar, Perlis	1,000
Kedah Cement Sdn. Bhd.: Langkwai, Kedah	1,200
Malaya Industries & Mining Corp.: Batu Caves, Selangor	180
Perak Hanjoong Simen Sdn. Bhd.: Pedang Rengas, Perak	1,200
Tasek Cement Bhd.: Ipoh, Perak	1,100
Total	7,180

Because of low-capacity utilization resulting from the slump in the cement market and high-interest costs on overborrowings, Kedah Cement refinanced 62% of its $200 million construction loans from foreign banks in November. The state-owned Heavy Industries Corp. of Malaysia, which owned 35% of Kedah Cement, reportedly obtained the refinancing package through the Chase Investment Bank of the United States. The new Japanese loans reportedly were in two packages, one for 10 years at 5.95% and the other for 15 years at 6.00%, and were provided by a syndicate led by the Japan Leasing Corp.

MINERAL FUELS

Natural Gas.—Natural gas production from offshore of Sabah, Sarawak, and Terengganu increased to 1.6 billion cubic feet per day from 1.5 (revised) billion cubic feet per day in 1986, resulting from further increases in consumption of natural gas for production of LNG in Bintulu, Sarawak, and production of LPG in Kerteh, Terengganu. More than 80% of the natural gas produced in Malaysia was exported to Japan in the form of LNG. Because of its large natural gas reserves and the strength of natural gas export earning power, Malaysia was looking for long-term export markets in the Republic of Korea, Singapore, and Taiwan.

According to Petronas, the state-owned oil and gas company, the second phase of the gas-utilization project to bring offshore natural gas to Peninsular Malaysia's west coast began in late 1986. The $476 million project for construction of a 726-kilometer pipeline was expected to start in 1988. The pipeline will bring gas from Terengganu on the east coast to Segamat, Johore, from where one branch will connect Johore Bahru in the south and another will continue west and north to the Kelang Valley where the industrial and population centers are located. The project was scheduled for completion in 1990 or 1991. Petronas reportedly has acquired 6,000 acres of land for the pipeline and cleared 80% of the site. Petronas planned to finance the project internally, although Japan's Overseas Economic Cooperation Fund reportedly offered to extend a $397 million, 30-year loan at 4% interest for the project.[10]

In connection with Peninsular Malaysia's pipeline project, Petronas awarded Novacorp of Canada the main project contract for pipeline management, operation, and maintenance in late 1986. Petronas also awarded a consortium, led by United Engineers of Malaysia and Toyo Engineering Corp. of Japan, a management contract in early 1987 for a new gas-processing plant, an LPG export terminal, and a small reticulation system.

According to Malaysia LNG Sdn. Bhd., the operator of the Bintulu LNG plant in Sarawak, the plant earned an accumulated net income of $3.2 billion since production began in January 1983. The annual dividend was 9.5% in the past; however, the company's managing director said shareholders could expect a substantial increase in dividends (20% to 30%) in the future. Malaysia LNG is 60% owned by Petronas; 17.5% by Shell Gas B.V., 17.5% by Mitsubishi Corp. and 5% by the Sarawak State government. In 1986, exports of LNG totaled 278.5 billion cubic feet and were valued at more than $734 million. According to the Ministry of Primary Industry, export earnings from LNG were estimated at $681 million in 1987.

Petroleum.—In supporting OPEC's plan to stabilize world oil prices, the Government of Malaysia cut its crude petroleum production for 6 months by 10% from the originally planned 520,000-barrel-per-day level for 1987. As a result, the output of crude petroleum decreased to an average of 498,000 barrels per day in 1987 from 503,000 barrels per day in 1986. However, the Government announced in November that the output of crude petroleum would be raised to 540,000 barrels per day in 1988 to increase revenues and export earnings. According to the Ministry of Primary Industry, export earnings from crude petroleum were valued at $2.1 billion in 1986 and were expected to increase to $2.6 billion in 1987. Two oil platforms and a central-processing facility at the newly developed Seligi Oilfield offshore of Dungun, Terengganu, reportedly were expected to be installed and commence production in 1988. The oilfield, being developed by EPMI, has oil reserves of 1 billion barrels.

Because of stabilized world oil prices, higher incentives provided by better production-sharing contract terms, and the high potential for discovering oil and gas in Malaysia, exploration activity was expected to increase substantially in 1988. In 1987, five production-sharing contracts were signed between Petronas and the following foreign oil companies: a consortium of Idemitsu Oil Development Co. Ltd. of Japan and

Pecten Sarawak Co. of the United States for Block SK1 off Sarawak; a consortium of Overseas Petroleum & Investment Corp. of Taiwan, Phoenix Resource Co. of the United States, and Samsung Co. and Yukong Ltd. of the Republic of Korea for Block SK7 off Sarawak; AOC Energy Development Co. Ltd. of Japan for Block SK14 off Sarawak; a consortium of Taiyo Oil Development Co. and Japan Petroleum Exploration Ltd. of Japan and Petronas Carigali Sdn. Bhd. of Malaysia for Block PM10 off Terengganu; and a consortium of Sabah Shell Petroleum Co. and Pecten Malaysia Co. of the United Sates for Block SB1 off Sabah. Petronas also signed five letters of intent with foreign oil companies mainly from the United States.[11]

According to both Petronas and Government data, Petronas and its contractors were expected to spend $93.7 million and drill 14 exploratory wells in 1987, compared with 15 (revised) in 1986 and 29 (revised) in 1985.

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[1]Economist, Division of International Minerals.
[2]Where necessary, values have been converted from Malaysia ringgits (M$) to U.S. dollars at the rates of M$2.58=US$1.00 in 1986 and M$2.52=US$1.00 in 1987.
[3]U.S. Embassy, Kuala Lumpur, Malaysia. Economic Trends Report. State Dep. Airgram A-31, Nov. 12, 1987.
[4]The Star (Penang). Jan. 15, 1987, p. 1.
[5]Mining Journal (London). V. 309, No. 7934, Sept. 11, 1987, p. 200.
[6]The Asian Wall Street Journal. V. 11, No. 159, Apr. 16, 1987, p. 1.
Far Eastern Economic Review (Hong Kong). V. 135, No. 18, Apr. 30, 1987, p. 54.
[7]Tin International (Kuala Lumpur). V. 60, No. 8, Aug. 1987, p. 168.
Far Eastern Economic Review (Hong Kong). V. 136, No. 73, Jun. 1987, p. 68.
[8]Mining Journal (London). V. 309, No. 7937, Oct. 2, 1987, p. 261.
[9]The Asian Wall Street Journal. V. 11, No. 183, May 21, 1987, p. 1.
Far Eastern Economic Review (Hong Kong). V. 136, No. 21, May 21, 1987, p. 49.
[10]U.S. Embassy, Kuala Lumpur, Malaysia. State Dep. Telegram 09089, Nov. 3, 1987, p. 1.
[11]Petroleum News (Hong Kong). V. 18, No. 8, Nov. 1987, p. 39.

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